National Energy Marketers Association

BEFORE THE

FEDERAL COMMUNICATIONS COMMISSION

In the Matter of	)	
	)	
Inquiry Concerning the Deployment of	)	
Advanced Telecommunications	)	
Capability to All Americans in a Reasonable	)	**GN Docket No. 04-54**
And Timely Fashion, and Possible Steps	)	
To Accelerate Such Deployment	)	
Pursuant to Section 706 of the	)	
Telecommunications Act of 1996	)	

COMMENTS
OF
THE NATIONAL ENERGY MARKETERS ASSOCIATION

The National Energy Marketers Association (NEM)[1] is pleased to submit these comments regarding the wholesale and retail transmission over power lines in interstate and foreign commerce of electricity encoded with information/content [Broadband over Power Lines (BPL)]. These comments address an apparently complex jurisdictional overlap of two federal agencies and numerous state agencies, as well as an apparent overlap of the wholesale and retail transmission in interstate commerce of electricity with and without information/content commingled with it. NEM submits that granting open, nondiscriminatory access to power lines that transmit electricity commingled with content would fulfill the intent of Congress as expressed in Section 706 of the Telecommunications Act of 1996 (TCA) as well as the Pole Attachment Act,[i] when read consistently with the statutory obligations of the Federal Energy Regulatory Commission (FERC) under the Federal Power Act,[ii] and as interpreted by the Supreme Court in the cases of New York v. FERC,[iii] and National Cable,[iv] as well as the Ninth Circuit Court of Appeals in the case of Brand X Internet Services.[v]

[1] NEM is a national, non-profit trade association representing wholesale and retail marketers of natural gas, electricity, as well as energy and financial related products, services, information and advanced technologies throughout the United States, Canada and the European Union. NEM's membership includes independent power producers, suppliers of distributed generation, energy brokers, power traders, electronic trading exchanges and price reporting services, advanced metering, demand side management and load management firms, billing, back office, customer service and related information technology providers. NEM members are global leaders in the development of enterprise solution software for energy, advanced metering, telecom, information services, finance, risk management and the trading of commodities and financial instruments. NEM members also include Multiple Service Organizations (MSOs), inventors, patent holders, systems integrators, developers and servicing companies for advanced power line technologies including BPL, PLC and Hybrid-PLC. NEM's mission is to help federal and state lawmakers and regulators to implement a consumer-focused, value-driven transition to a reliable, price and technology competitive retail marketplace for energy, telecom and financial related products, services, information and technologies. These comments also incorporate by reference NEM's comments submitted in FCC Docket Number 04-37.

Background

As an initial matter, it is important to note that current BPL/PLC technology is not radio frequency energy nor is it intentionally broadcast or transmitted by radio or as radio frequency energy. Unlike broadband transmitted by satellite, DSL wire or coaxial cable, current Access Broadband transmitted over electrical power lines operates below FCC jurisdiction at a 60 hertz base band and uses inductive couplers as single-phase micro-generators to produce encoded micro-voltages of electrical energy that represent information/content.

This "electrical information/content" is inductively coupled onto power lines for either wholesale or retail transmission into, through and/or from interstate commerce. Consequently, open, non-discriminatory access to power lines is vital to compete for market share in this important new market. It should also be noted that unlike "old" electricity, the new "electrical information/content" that is transmitted within the megawatts flowing through the power lines has, in most instances, already traveled into or through either interstate or foreign commerce.

Section 706 of the Telecommunications Act of 1996

Within Section 706, Congress expressed a plain but broadly worded, explicit intention to encourage the "deployment" of "advanced telecommunications capabilities" and used mandatory language when referencing the statutory obligation and authority of both the Federal Communication Commission (FCC),[vi] and the State commissions with relevant jurisdiction.[vii]

What is interesting about the application of this statutory language is that each phrase bolded below could be construed to apply to BPL.[2] However, if read in light of FCC's overall jurisdiction under the Telecommunications Act (see endnotes) none of them may apply. Congress expressed a similar explicit intention that the FERC encourage the deployment of "advanced transmission technology" as part of the Energy Policy Act of 2003 that was tabled for other reasons.[3]

The relevant portion of Section 706 of the Telecommunications Act of 1996 reads as follows**:**

> The Commission and each State commission with regulatory jurisdiction over telecommunications services **shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans** (including, in particular, elementary and secondary schools and classrooms) **by utilizing**, in a manner consistent with the public interest, convenience, and necessity, **price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market**, ***or*** other regulating **methods that remove barriers to infrastructure investment**. (Emphasis Added.)

[2] If BPL referred to RF energy transmitted over telephone lines instead of electrical energy transmitted over electricity lines.

[3] See Section 1224 in H.R.6. Advanced BPL technology also has electrical grid surveillance applications that can significantly enhance reliability.

Obstacles to Deployment
Of Advanced BPL Technologies

The invention, development, implementation, funding, commercialization and intellectual property (IP) protection of "advanced telecommunications capabilities"[4] by private sector individuals and corporations headquartered and/or subject to the laws and taxation of the United States are some of the most competitively challenging undertakings in global commerce.[5] Even with a statutory guarantee of mandatory, open, non-discriminatory access for telecom carriers and cable systems,[6] the intellectual and financial capital as well as the resources and access to the capital necessary to advance the current state of telecommunications technology is significant, normally prohibitive. Indeed, the financial resources and access to the switched network infrastructure were once the heart and soul of the nation's most well known monopoly, AT&T.

In 1949,[7] the U.S. initiated the fabled antitrust suit against AT&T. Thirty-five years latter MCI and Sprint had their first taste of competition on the AT&T network. This landmark case ushered in, albeit slowly, a new era of competition within markets that had never before seen the impacts of competition. Fearful of all manner of catastrophe and hyperbole, the modern telecommunications market began, and consumers shopped for long distance service and new styled telephones for the very first time. It is important to note that since that time, long distance rates have declined more than ninety percent and advances in telecom technology have significantly changed the world economy.

In the case of broadband transmitted over power lines (BPL/PLC), all of the above technical and competitive challenges are also true. However, when micro-voltages of electricity are encoded to represent information/content and transmitted as electrical energy over power lines as part of an interstate transaction which ends directly into homes and or commercial establishments, this transaction and this technology appear to have a number of jurisdiction and technology issues that must be addressed in order to avoid the sheer complexity of law, physics and technology becoming the very barrier to deployment that Congress obviously intended to avoid.

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[4] "The term **'advanced telecommunications capability'** is defined, without regard to any transmission media or technology, as high-speed, **switched**, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology." Pub. L. 104-104, title VII, Sec. 706(c)(1), Feb. 8, 1996, 110 Stat. 153, as amended by Pub. L. 107-110, title X, Sec. 1076(gg), Jan. 8, 2002, 115 Stat. 2093. (Emphasis added).

[5] The country of Korea has recently announced that nearly half of their entire electrical infrastructure has been replaced with advanced BPL technology.

[6] 47 U.S.C. § 224(f) states: **A utility shall provide a cable television system or any telecommunications carrier with non-discriminatory access to any pole, duct, conduit, or right-of-way owned or controlled by it. . . . a utility** providing electric service may deny a cable television system or any telecommunications carrier access to its poles, ducts, conduits, or rights-of-way, on a non-discriminatory basis where there is insufficient capacity and for reasons of safety, reliability and generally applicable engineering purposes. (Emphasis added).

[7] A 1982 consent decree between the Federal Government and then integrated AT&T resulted in its breakup in January 1984. This consent degree modified an earlier degree of final judgment agreed to in 1956 that settled an antitrust case brought by the Government in 1949.

A review of all the law cited on page one suggests persuasively that Congress never intended the FCC to have federal jurisdiction over electric power lines other than perhaps to ensure that radio frequency (RF) emissions from power lines do not disturb FCC jurisdictional entities.[8] However, the plain language of the Federal Power Act, as well as the landmark ruling of the Supreme Court in the case of New York v. FERC, particularly when read together with National Cable, unquestionably confers FERC with primary and/or exclusive federal jurisdiction over both access to as well as the just and reasonable pricing of power lines used to transmit "electricity" into or through interstate commerce, regardless of "whether or not it does other things as well."[9]

The plain statutory expression of jurisdiction in each agency's enabling legislation confirmed by the Supreme Court in both cases, plus the intentional omission of "power lines" from the Pole Attachment Act (PAA) deprives the FCC of the fundamental authority to mandate access to the very power lines that are both necessary and critical to field, test and implement such technology. Of equal concern on a pure policy level, even if a court overlooked the obvious omission of power lines in the PAA, and somehow concluded that Congress intended the FCC to have either the power or authority to mandate non-discriminatory open access to electrical power lines at just and reasonable rates, it appears from a recent series of rulings that the FCC would be reluctant to do so.

In its Wireline Broadband Inquiry, FCC "tentatively concluded" that, "wireline broadband Internet access services - whether provided over a third party's facilities or self-provisioned facilities - are information services subject to regulation under Title I of the Act."[10] This is just one of many rulings in which the FCC has asserted jurisdiction over a telecommunication-like phenomena, called it an information service and deprived the technology from enjoying open, non-discriminatory access to utility infrastructure. The same FCC interpretation has denied open access to broadband over DSL lines as well as broadband over cable. Fortunately, the Supreme Court held the commingling of telephony with wireless or cable with broadband entitled the commingled services to the open access provisions of the PAA. However, with these recent FCC rulings it appears

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[8] See 47 U.S.C. 302a(a) providing that,

> The Commission may, consistent with the public interest, convenience, and necessity, make reasonable regulations
> (1) governing the interference potential of devices which in their operation are capable of emitting radio frequency energy by radiation, conduction, or other means in sufficient degree to cause harmful interference to radio communications; and
> (2) establishing minimum performance standards for home electronic equipment and systems to reduce their susceptibility to interference from radio frequency energy. Such regulations shall be applicable to the manufacture, import, sale, offer for sale, or shipment of such devices and home electronic equipment and systems, and to the use of such devices.

[9] In National Cable the Supreme Court found that, "Cable attachments providing commingled services come within the ambit of the [Telecommunications] Act." It reached this conclusion by reasoning that, "[t]he addition of a service does not change the character of the attaching entity… attachment . . . by a cable television system" is still (entirely) an attachment "by" a cable television system whether or not it does other things as well." 534 U.S. 327 (2002). Similarly, electricity that "does other things as well" (e.g. is commingled with information/content) is clearly FERC jurisdictional, and still clearly electricity within the Federal Power Act.

[10] Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, CC Docket No. 02-33, Universal Service Obligations of Broadband Providers, Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review - Review of Computer III and ONA Safeguards and Requirements, CC Docket Nos. 95-20, 98-10, Notice of Proposed Rulemaking, para. 16 (2002). [Hereinafter Wireline Broadband Inquiry]

that the Supreme Court will be called upon again in the Brand X case to open the needed access for broadband over wire and wireless technologies.

And herein lies the policy conundrum. The FCC has made a conscious policy decision to elevate the return on infrastructure investment above the public's interest in price and technology-on-technology competition. Competition among monopolies appears to be enough competition to satisfy the public interest protected by the federal government under the Telecom Act.

To be clear, NEM is extremely sensitive to the return on infrastructure investment. NEM members have repeatedly had their business models changed or destroyed by an unexpected regulatory change that attenuated a return on capital or rendered an investment already made no longer a competitive use of capital. In fact, in the energy business, regulatory risks can often increase the cost of capital far more than operational risks or financial risks.

However, when one views the specific congressional intent expressed in 706 of the TCA, a very strong case can be made that mandating open, non-discriminatory access to power lines for the transmission of plain electricity commingled with content-encoded electricity is not only consistent with existing FERC jurisdiction as well as the restructuring policies of many state PUCs, but such a policy is clearly consistent with the entire regulatory regime that gave birth to the restructured telecom industry as well.

Recommendations

When micro-voltages of electricity that have been encoded to represent information/content and commingled with regular electricity are transmitted to consumers for consumption it constitutes retail BPL transmission, and if for resale it constitutes wholesale BPL transmission. The electrical information/content originates in the Internet cloud. When the micro-voltages of electrical information/content are commingled with other electricity and transmitted to a customer's premises it has already traveled in interstate or foreign commerce and this interstate sale is consummated at the consumer's premises. It is important to note that the transmission of electrical information/content by power line occurs until it is delivered to a consumer and distributed within a consumer's premises by "In-house BPL."[11] Consequently, regardless of whether the power lines that are used to transmit BPL are distribution lines or transmission lines, the character of the transaction until delivery, remains a transmission of content-encoded electricity over power lines in interstate or foreign commerce."

It is clear that the FERC has federal jurisdiction over power lines used to transmit electrical energy in interstate commerce. And, unlike broadband over DSL telephone lines or coaxial cables, broadband over power lines involves the transmission of electrical energy over electric power lines. Absent a specific legislative amendment to the Pole Attachment Act to add the words "power lines," it is overwhelmingly clear that Congress never intended the FCC to assert federal regulatory jurisdiction over electrical energy transmitted over power lines. Consequently, NEM would urge the FCC to fulfill its

[11] The distinction between Access BPL and In-house BPL may be the BPL equivalent of the legal distinction between "transmission" and "distribution," for purposes of determining where federal jurisdiction stops and state jurisdiction begins.

mandate under Section 706 by coordinating the encouragement of this "advanced transmission technology" with the Federal Energy Regulatory Commission.

However, because of the language in Section 706, NEM would also suggest to both FCC and FERC to actively reach out and engage those state commissions that have: 1) certified compliance with the Pole Attachment Act, and 2) those State commissions that also have open access jurisdiction over power lines under state law and are willing to implement the same. NEM support's the FCC's formula for establishing just and reasonable prices for pole attachments under the Pole Attachment Act. NEM suggests that the FERC and the State Commissions with open access jurisdiction over power lines should consider using FCC's formula as a model for pricing access to power lines for the encoded micro-voltages that represent the information/content portion of the electricity flowing over any particular power line.

NEM urges the FCC to work closely with the FERC to open power lines for the wholesale and (unbundled) retail transmission of electrical energy ["whether or not it does other things as well." 534 U.S. 327 (2002)]. NEM suggests that a Memorandum of Understanding (MOU) between the FCC and the FERC that apportions jurisdiction over BPL could help to reduce regulatory risks and help to encourage the deployment of this technology. Within the MOU, the FCC should properly enforce any relevant Part 15 emissions standards, and clarify that the FERC will exercise its statutory authority over power line access and pricing.

NEM urges the FCC to refrain from amending Part 15 to assert jurisdiction over BPL technology and to postpone issuance of a final rule in Docket 04-37 until both the FCC and the FERC can more accurately assess the potentially significant anti-competitive impacts that can result from the failure to mandate "open, non-discriminatory access" at just and reasonable prices to power lines for the transmission of BPL. However, in the event that FCC asserts jurisdiction over electricity and power lines, NEM would urge the FCC to mandate open non-discriminatory access to all power lines used to transmit content-encoded electricity commingled with non-encoded electricity.

Conclusion

The FCC, the FERC and many state PUCs have been working hard to restructure both the telecom and the energy industries. Advanced BPL actually represents the convergence opportunity that was once envisioned, but never realized. Advanced BPL is, in essence, the convergence of the physics, the technology and the policies that have driven the restructuring of both industries, namely: (1) price competition, (2) technology-on-technology competition, (3) the encouragement of local telephone competition, as well as (4) the encouragement, indeed the windfall of an entirely new full-blown network infrastructure that is not only built and paid for, but the windfall from which could also result in lower prices for energy as well as the technology that is commingled with it.

Truly advanced BPL with transmission speeds in the multi-gigabyte range could facilitate an entirely new level of technology-based economic growth, significant increases in productivity and create disproportionately greater benefits for lower-income and rural consumers. If Advanced BPL is deployed with the bandwidth and speed that is currently technologically possible,[12] this is precisely what Silicon Valley has been waiting for since

[12] See http://www.hypertransport.org; see also SN 10/487,717.

the inception of the Internet itself. If the existing electricity infrastructure can become a large enough digital pipe into virtually every home in the United States, it could have significant implications for the technological advancement of numerous other industries as well.

Moreover, the use of power lines for such a new, high-value purpose can maximize the efficient utilization of existing infrastructure investments, potentially increase asset valuations and thereby lower the cost of capital needed for reliability upgrades. Additionally, the near-term improvements to power line surveillance, grid reliability, blackout prevention, isolation and mitigation as well as homeland security could be significant.

NEM appreciates this opportunity to offer its views on BPL. NEM and its members would be pleased to further discuss the issues raised above with both Commissions and Staff.

Sincerely,

Craig G. Goodman, Esq.
President,
National Energy Marketers Association
3333 K Street, NW
Suite 110
Washington, DC 20007
Tel: (202) 333-3288
Fax: (202) 333-3266
Email: cgoodman@energymarketers.com

ENDNOTES:

[i] The Pole Attachment Act and Section 703 of the TCA provides that, "***A utility shall provide*** a cable television system or any telecommunications carrier with ***nondiscriminatory access*** to ***any pole, duct, conduit, or right-of-way*** owned or controlled by it." 47 U.S.C. § 224(f)(1). **Congress' omission of "wires" from FCC's jurisdiction could not be more obvious or intentional.**

[ii] Pursuant to Section 201(b) of the Federal Power Act (FPA), FERC has exclusive jurisdiction over, "the transmission of electric energy in interstate commerce and to the sale of electric energy at wholesale in interstate commerce." 16 U.S.C. § 824(b). The FPA states that, "electric energy shall be held to be transmitted in interstate commerce if transmitted from a State and consumed at any point outside thereof; but only insofar as such transmission takes place within the United States." 16 U.S.C. §824(c). However, recognizing that, "any electricity that enters the grid immediately becomes a part of a vast pool of energy that is constantly moving in interstate commerce," in NY v. FERC, 122 S.Ct. 1012 (2002), the Supreme Court affirmed FERC's interpretation, "that transmissions on the interconnected national grids constitute transmissions in interstate commerce." Under Section 205 of the FPA, unjust and unreasonable rates and undue discrimination are prohibited.[ii] The Commission was granted the authority to remedy unjust and unreasonable rates and undue discrimination in Section 206 of the FPA. FERC issued Order 888, pursuant to Section 205 and Section 206, to remedy discrimination in access to electric utility transmission services.

[iii] The Supreme Court held that FERC's jurisdiction is undeniable: "[t]here is no language in the statute limiting FERC's transmission jurisdiction to the wholesale market." "[t]hat text unquestionably supports FERC's jurisdiction to order unbundling of wholesale transactions. . .as well as to regulate the unbundled transmissions of electricity retailers." New York v. FERC, 122 S.Ct. 1012 (2002). The Supreme Court

applied the 1935 statutory language of the Federal Power Act to the facts of a vastly changed electric market, as follows:

> No party to these cases has presented evidence that Congress foresaw the industry's transition from one of local, self-sufficient monopolies to one of nationwide competition and electricity transmission. Nor is there evidence that the 1935 Congress foresaw the possibility of unbundling electricity transmissions from sales. More importantly, there is no evidence that if Congress had foreseen the developments to which FERC has responded, Congress would have objected to FERC's interpretation of the FPA. Whatever persuasive effect legislative history may have in other contexts, here it is not particularly helpful because of the interim developments in the electric industry. Thus, we are left with the statutory text as the clearest guidance. That text unquestionably supports FERC's jurisdiction to order unbundling of wholesale transactions (which none of the parties before us questions), as well as to regulate the unbundled transmissions of electricity retailers.

[iv] In National Cable the Supreme Court found that, "Cable attachments providing commingled services come within the ambit of the [Telecommunications] Act." It reached this conclusion by reasoning that, "[t]he addition of a service does not change the character of the attaching entity… attachment . . . by a cable television system" is still (entirely) an attachment "by" a cable television system whether or not it does other things as well." 534 U.S. 327 (2002). Similarly, electricity that "does other things as well" (e.g. is commingled with information/content) is clearly FERC jurisdictional, and still clearly electricity within the Federal Power Act.

[v] The Ninth Circuit affirmed its prior holding that, "cable broadband service was not a "cable service" but instead was part "telecommunications service" and part "information service." As a result of this classification, cable broadband providers would be required to open their lines to competing Internet Service Providers. 345 F.3d 1120 (9th Cir. 2003).

[vi] The Telecommunications Act of 1934 established the FCC's original grant of jurisdiction, as follows:

> For the purpose of **regulating interstate and foreign commerce in communication by wire and radio** so as to make available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, **Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges, for the purpose of the national defense, for the purpose of promoting safety of life and property through the use of wire and radio communications, and … by granting additional authority with respect to interstate and foreign commerce in wire and radio communication,** there is created a commission to be known as the "Federal Communications Commission," (47 USC § 151). (Emphasis added).

Section 152 of the 1934 Act, as amended, applies the above as follows:

> (a) The provisions of **this chapter shall apply to all interstate and foreign communication by wire or radio and all interstate and foreign transmission of energy by radio, which originates and/or is received within the United States**, and to all persons engaged within the United States in such communication or such transmission of energy by radio, and to the licensing and regulating of all radio stations as hereinafter provided; …. The provisions of this chapter shall apply with respect to cable service, to all persons engaged within the United States in providing such service, and to the facilities of cable operators which relate to such service, as provided in subchapter V-A. (47 USC § 152)(Emphasis added).

In 1978, Congress adopted the Pole Attachment Act, and **Section 703 of the Telecommunications Act of 1996 expanded the coverage of the Pole Attachment Act** to telecommunications service providers in addition to cable service providers **and made non-discriminatory access to a utility's infrastructure mandatory**. 47 U.S.C. § 224(f) states as follows:

> A utility shall provide a cable television system or any telecommunications carrier with **non-discriminatory access** to any pole, duct, conduit, or right-of-way owned or controlled by it. . . . a utility providing electric service may deny a cable television system

or any telecommunications carrier access to its poles, ducts, conduits, or rights-of-way, on a non-discriminatory basis where there is insufficient capacity and for reasons of safety, reliability and generally applicable engineering purposes. (Emphasis added)**.**

[vii] Pub. L. 104-104, title VII, Sec. 706, Feb. 8, 1996, 110 Stat. 153, as amended by Pub. L. 107-110, title X, Sec. 1076(gg), Jan. 8, 2002, 115 Stat. 2093, provides:

"(a) In General. - **The Commission and each State commission with regulatory jurisdiction over telecommunications services shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans**…**utilizing**, in a manner consistent with the public interest, convenience, and necessity, price cap regulation, regulatory forbearance, **measures that promote competition in the local telecommunications market**, or other regulating methods that remove barriers to infrastructure investment.

"(b) Inquiry. - The Commission shall, within 30 months after the date of enactment of this Act [Feb. 8, 1996], and regularly thereafter, initiate a notice of inquiry. . . .In the inquiry, the Commission shall determine whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion. **If the Commission's determination is negative, it shall take immediate action to accelerate deployment of such capability by removing barriers to infrastructure investment and by promoting competition in the telecommunications market.** (Note to 47 U.S.C. § 157).